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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/651,855	08/29/2003	Shuichi Kikuchi	10417-057002	9444

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EXAMINER

NGUYEN, THANH T

ART UNIT	PAPER NUMBER
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2813

DATE MAILED: 11/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/651,855

Applicant(s)

KIKUCHI ET AL.

Examiner

Thanh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 7-10 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 7-10 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8/29/03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119

(a)-(d). The certified copy has been filed in parent Application No. 09/789,163, filed on 2/20/01.

Information Disclosure Statement

The information disclosure statement filed on 8/29/03 has been considered.

Oath/Declaration

Oath/Declaration filed on 8/29/03 has been considered.

Drawings

Figures 15-18 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-3, 7-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Vo et al. (U.S. Patent No. 5,328,859).

Referring to figures 2a-2j, Vo et al. teaches a semiconductor device comprising:

A semiconductive layer (12) of a first conductive type (n), (see figure 2h, col. 2, lines 65-67);

Forming a first gate oxide (45) and a second gate oxide (42+44) formed on the semiconductive layer;

A gate electrode (46, formed to range from the first gate oxide (44) film to the second gate oxide film (42-44);

A source region (14) of a second conductive type (p) formed adjacent to the gate electrode (46);

Drain region (20) of the second conductive type (p) formed in a position apart from the gate electrode;

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A drift region (18) of a second conductive type (p) formed so that the drift region surround the drain region; and

An impurities layer (16) of a second conductive type (p) formed adjacent to the drain region (20).

Regarding to claim 2, the impurities layer (16) is formed to range at least one end of the drain region to one end of the gate electrode (see figure 2g-2h).

Regarding to claim 3, the impurities layer (16) is formed in a surface of the drift region (18) so that it is located between one end of the drain region and one end of the gate electrode (see figure 2h).

Regarding to claim 7, referring to figures 2a-2h, Vo et al. teaches a semiconductor device comprising:

A gate electrode (46) formed on a semiconductor layer of a first conduction type (n) through a gate oxide film (44);

A highly doped source region (14, see figure 2h) of a second conduction type (p) formed to be adjacent to the gate electrode (46);

A highly doped drain region (20) of the second conduction type (p) formed at a position apart from the gate electrode (46); and

A drift region (18) of the second conduction type (p) formed so as to surround the drain region;

Wherein an impurity region (d2, overlap region (16+18)) of the second conduction type (p) which is more lightly doped than the highly doped drain region (20) and it is more highly

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doped than the drift region (18) is formed to surround a vicinity of the highly doped drain region (see figure 2g-2h, col. 3, lines 1-30).

Regarding to claim 8, a gate oxide formed to extend from the first gate oxide film to the second gate oxide film (42+44) having a larger thickness than that of the first gate oxide film (44).

Regarding to claim 9, the impurity region (16) of the second conduction type (p) is formed to extend from at least one end of the drain region (20) and to be adjacent to one end of the gate electrode (46).

Regarding to claim 10, the impurity region (16) of the second conduction type (p) is formed evenly in depth so as to be adjacent to one end of the gate electrode (46) through the first gate oxide film and to surround the vicinity of the drain region (20).

Claim 7 is rejected under 35 U.S.C. 102(e) as being anticipated by Yang (U.S. Patent No. 6,306,711).

Regarding to claim 7, referring to figures 4a-4e, Yang et al. teaches a semiconductor device comprising:

A gate electrode (209) formed on a semiconductor layer (200) of a first conduction type (p) through a gate oxide film (208, see figure 4d, col. 2, lines 54-67);

A highly doped source region (213) of a second conduction type (n+) formed to be adjacent to the gate electrode (209, see col. 3, lines 25-34);

A highly doped drain region (212) of the second conduction type (n+) formed at a position apart from the gate electrode (209); and

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A drift region (202) of the second conduction type (n) formed so as to surround the drain region (212);

Wherein an impurity region (203) of the second conduction type (n) which is more lightly doped than the highly doped drain region (212, n+) and it is more highly doped than the drift region (202) is formed to surround a vicinity of the highly doped drain region (see figure 4, col. 2, lines 63-65 wherein $n^+ > n$ in concentration).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, Jr., can be reached on (571) 272-1702. The fax phone number for this Group is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956 (See **MPEP 203.08**).



Thanh Nguyen
Patent Examiner
Patent Examining Group 2800

TTN